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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/393,998	09/08/1999	CRAIG F. CULVER	IMM060.RE	3595

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PATENT DEPARTMENT (51851)  
KILPATRICK STOCKTON LLP  
1001 WEST FOURTH STREET  
WINSTON-SALEM, NC 27101

EXAMINER
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CHOW, DOON Y

ART UNIT	PAPER NUMBER
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2629

MAIL DATE	DELIVERY MODE
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06/21/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

09/393,998

Applicant(s)

CULVER, CRAIG F.

Examiner

Dennis-Doon Chow

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 24-46, 48-62, 64-66, 74-78 and 84-94 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 64-66 and 74-78 is/are allowed.
- 6) ☒ Claim(s) 24-27, 32-34, 36-46, 48-51, 53-62, 84-90 and 92-94 is/are rejected.
- 7) ☒ Claim(s) 28-31, 35, 52 and 91 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 46, 48, 50-51, 53-59, 61-62, 85-86, 88-90 and 94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marcus et al. (5643087) in view of Gillick et al. (5530455).

Regarding to claims 46, 54, 56, 58, 59, Marcus discloses an interface control device in communication with a computer for providing positioning signals to said computer for manipulating an image in a computer environment displayed on a screen by said computer (col. 3, lines 20-50), said device comprising: a support housing configured to be held by one hand of a user(col. 6, lines 8-12 and 22-23); a user manipulatable member (13, Fig. 2) coupled to said housing and engageable and moveable by a single thumb of said user in two degrees of freedom relative to said housing, and configured with a contact surface configured to be contacted by said thumb; at least one sensor coupled to said user manipulatable member and operative to sense movement of said user manipulatable member in said two degrees of freedom (col. 1, lines 45-58), said sensor operative to provide positioning signals which control positioning of said image on said screen by said computer; at least one actuator

coupled to said interface control device (Abstract), wherein said actuator is operative to provide a feedback force to said user that is correlated with an interaction of said displayed image in said computer environment (Abstract).

Marcus does not disclose a thumb trigger sensor operative to detect a trigger command from said user and to cause a trigger signal to be sent to said computer, the trigger command including a pressing motion by said thumb causing said user manipulatable member to move.

Gillick, in the same input art, discloses an input device comprising a user manipulatable member (24, Fig. 1) moveable in a rotary degree of freedom, a trigger sensor (35, 37, Fig. 5) operative to detect a trigger command from a user and to cause a trigger signal to be sent to a computer, the trigger command including a pressing motion by finger of the user causing said user manipulatable member to move in a trigger degree of freedom different from the rotary degree of freedom.

In light of Gillick, it would have been obvious to one of ordinary skill in the art to use Gillick's concept in Marcus' invention. By doing so, it allows the user to activate the trigger sensor without remove his/her thumb from the user manipulatable member.

Regarding to claim 48, Marcus discloses the user manipulatable member moveable in a rotary degree of freedom (Fig. 2) and Gillick discloses moving the user manipulatable member in a linear degree (trigger degree) of freedom.

Regarding to claims 50, 62, Marcus further discloses a first brake providing a drag in a first of said two degrees of freedom, and a second computer controlled brake coupled to said user manipulatable member and providing a drag in a second one of

said degrees of freedom of said user manipulatable member (col. 3, line 50 to col. 4, lines 22).

Regarding to claims 51, 61, and 85, Marcus further discloses said user manipulatable member is coupled to an arm member (21, Figs. 3 and 4) having rotary motion about a pivot point, wherein said first brake is coupled to said arm member to output forces about said pivot point.

Regarding to claim 53, Gillick further discloses a cursor that can be used to select an icon displayed on a screen, wherein said trigger command selects said icon when said cursor is positioned over said icon.

Regarding to claim 55, Marcus further discloses said device is provided in an automobile dashboard or automobile steering wheel (col. 1, lines 34-35).

Regarding to claim 57, the examiner takes Official Notice that using an electro-rheological compound in the actuator is old and well known in the art.

Regarding to claims 86, 88, 90, 94 in addition to the above disclosures, Marcus further suggests device can be held in one hand by stating (col.6, lines 9-12)

Regarding to claim 89, Marcus further discloses said rotary degree of freedom comprises a path of less than ninety degrees (col. 5, lines 54-57).

3. Claim 24-27, 32-34, 36-45, 49, 60, 84, 87, and 92-93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marcus et al in view of Gillick et al. as applied to the claims above, and further in view of Armstrong (5589828).

Regarding to claims 24-27, 32, 36-45, 49, 60, 84, 87, the combination of Marcus and Gillick, as indicated above teaches the claim limitations except for the first and second dimension (the two degrees of freedom) are approximately orthogonal to the third dimension (the trigger degree of freedom).

Armstrong, in the same input field, discloses an input device comprising a user manipulatable member moveable in two degrees of freedom which are provided substantially in a single plane (col. 7, lines 5-18).

It would have been obvious to one of ordinary skill in the art to substitute Armstrong's two degrees of freedom movement means for Marcus' two rotary degrees of freedom means because Marcus teaches other concepts can be used in the invention (col. 5, line 65 to col. 6, line 2).

Regarding to claim 33, Marcus further discloses the actuator is one of a motor (col. 1, lines 62-63).

Regarding to claims 34 and 92-93, Armstrong further discloses a centering spring (176, 177a, 210a and 228, cols. 5-6) return configured to a bias on said user manipulatable member to return to a center position after said user manipulatable member has been moved from said center position.

#### ***Allowable Subject Matter***

4. Claims 28-31, 35, 52, and 91 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claims 64-66, 74-78 are allowed.

***Response to Arguments***

6. Applicant's arguments filed 5/24/2007 have been fully considered but they are not persuasive.

Applicant argues that Marcus does not teach a handheld support housing configured to be held by one hand of a user. The examiner disagree with applicant's argument because Marcus clearly teaches a support housing configured to be held by one hand of a user (see col. 6, lines 8-12 and 22-23).

***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

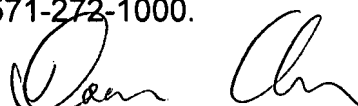
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis-Doon Chow whose telephone number is 571-272-7767. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on 571-272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Dennis-Doon Chow  
Primary Examiner  
Art Unit 2629

D. Chow  
July 15, 2007